Potential mineral deficiencies for Ndama cattle grazing *Urochloa* sp. based tropical pastures in the Bas-Congo province of the Democratic Republic of Congo

Picron P[1], Goubau A[1], Lecomte T[2], Romnée M[3], Bindelle J[1], Decruyenaere V[3], Beckers Y[1], Stilmant D[3]

[1] University of Liège, Gembloux Agro-Bio Tech, Animal Science Unit, Gembloux, Belgium; [2]Société des Elevages du Bandundu occidental, Kinshasa, Democratic Republic of Congo; [3] Walloon Agricultural Research Centre, Libramont, Belgium.

Contacts: jerome.bindelle@ulg.ac.be, stilmant@cra.wallonie.be

The Message

- Few studies have been performed on potential mineral deficiencies in grazing cattle in Western DRC
- We assessed the need for specific mineral supplementation of Ndama cattle on *Urochloa* pastures
- A mineral supplement providing Na, Cu and Zn is required

Introduction

- Artificial pastures are used to increase carrying capacity in the wet tropics by supplying higher quality forage (energy and protein) to the animals all year long
- Sowing pastures is labour-intensive so to be profitable all other possible growth limiting factors, especially minerals, should be alleviated
- We studied nutrients intake (energy, protein and minerals) in cattle grazing *Urochloa* sp. pastures in Western DRC

Material and Methods

- 3 *Urochloa ruziziensis* and 3 *U. decumbens* pastures in Kolo-Fuma (see picture below) (Bas-Congo, DRC)
- 3 Ndama steers and 3 cows grazing each pasture consecutively during the short rainy and dry seasons (see picture below)
- Handplucking and lab analysis of samples (energy, crude protein and ash) to calculate energy value (fodder units, FU) and digestible crude protein content (DCP) of the diets
- NIRS on faeces to determine dry matter (DM) intake
- ICP-AES to determine mineral content of the diets

Results

- Intake levels reached 66 ± 4.3 g $kg^{-1}LW^{0.75}$, nutritive value of forage was 0.701 ± 0.036 FU and 4.78 ± 1.04 % DCP, allowing daily weight gains > 550 g for steers and > 350 g for cows
- P, Ca, Mg, K, Mn & Fe were provided above requirements by the pasture. Na, Cu and Zn were deficient, especially during the short dry season for Cu and Zn. *U. ruziziensis* pastures tended to provide more minerals, especially during the rainy season

Table 1: Deficiency limits and mineral content of the cattle's diet (P, Ca, Mg, K, Na in g kg^{-1}DM; Fe, Mn, Zn, Cu in mg kg^{-1}DM)

	Pasture	P	Ca	Mg	K	Na	Cu	Zn	Mn	Fe
Dry season	*U. decumbens*	2.64	3.66	2.35	15.1	0.08	0.99	26.6	158	174
	U. ruziziensis	2.47	3.97	2.38	14.0	0.11	0.56	31.6	184	216
Rainy season	*U. decumbens*	2.68	2.96	2.07	17.5	0.08	1.81	29.7	155	202
	U. ruziziensis	2.72	3.65	2.26	17.5	0.09	2.49	43.0	164	237
	P-values	NS	S^{*1}, P^{NS}	S^{*}, P^{NS}	S^{*}, P^{NS}	NS	S^{*}, P^{NS}	S^{*}, $P\times S^{*}$	NS	NS
	Deficiency limits	2	2	0.7	3.2	0.6	7	45	45	5

[1]S, influence of the season; P, influence of the pasture; NS, not significant; *, P<0.05

Conclusions

- A mineral supplement providing Na, Cu and Zn is required to reach the daily weight gains allowed by energy and protein supplies
- The supplement could reasonably be similar for *U. decumbens* and *U. ruziziensis* pastures
- But the dry season formula should provide more Cu and Zn than the rainy season formula

Acknowledgements go to SEBO (Kinshasa, DRC) for funding the study.